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EXAMINER	
MOON, SEOKYUN	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,502	IISAKA ET AL.	
	Examiner	Art Unit	
	Seokyun Moon	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,and 6-14* is/are rejected.

7)☒ Claim(s) *3-5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Claims 9 and 10 were rejected under 35 U.S.C. 112, first paragraph, as failing to be consistent with the aspect of the invention disclosed in the specification of the Application.

Currently, the claims are amended.

The rejections of **claims 9** and **10** made under 35 U.S.C. 112, first paragraph have been withdrawn.

2. Applicant's arguments regarding **claims 1-2** and **4-14** filed on June 22, 2006 have been fully considered but they are not persuasive.

Regarding the Applicant's argument with respect to the rejection of **claim 1**, the Applicant pointed out that the permanent magnet 31 in Hiroaki would not provide a stable crisp click in Keiji's trackball device (JP Pub. No. 2002-140160) since the repulsion caused by the permanent magnet 31 of Hiroaki makes rotation of the ball portion unstable [Remarks: pg 9 lines 10-11 and 18-20].

However, the idea or basis of combining Keiji with Hiroaki is adopting Hiroaki's permanent magnet 31 into Keiji's trackball device in order to provide a click feeling by magnetically coupling the Hiroaki's permanent magnet 31 with Keiji's ball portion. In other words, the motivation of combining of Keiji and Hiroaki is based on using a permanent magnet in Keiji in order to generate attraction force between Keiji's ball portion and the permanent magnet, thus to provide a click feeling, as taught by Hiroaki. The repulsion force disclosed in Hiroaki is not related to the motivation of combining Keiji and Hiroaki since the repulsion force is caused by the various poles included in Hiroaki's ball portion.

Since Hiroaki's permanent magnet 31 does not have a varying magnetic force but a constant magnetic force and the basis of providing a click feeling in Hiroaki is attraction between the ball portion and the permanent magnet, the combination of Keiji and Hiroaki would not make the rotation of Keiji's ball portion unstable while it provides a click feeling to the device user, as taught by Hiroaki.

Regarding the Applicant's argument with respect to the rejection of **claim 5**, Keiji inherently teaches the case portion being made of unmagnetized material since it is required for Keiji to prevent any interference on the magnetic coupling between the ball portion and the permanent magnet and there would be a magnetic coupling between the ball portion and the case portion if the case portion is magnetized, thus interfering the movement of the ball portion.

Keiji does not expressly disclose the case portion being made of magnetic material.

However, as disclosed in the Keiji's specification, par [0048], Keiji's case 22 is a conductor connecting the insulating coat 30 with a ground.

Since any conductor (ex. iron) is potentially a magnetic material, Keiji teaches the case portion being made of unmagnetized magnetic material.

Regarding the Applicant's arguments with respect to the rejections of **claims 7, 8, 13,** and **14**, the argument is based on the argument made with respect to the rejection of claim 1.

However, the argument with respect to the rejection of claim 1 is not persuasive as disclosed on page 2 of this Response.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-2, 6,** and **9-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji et al. (JP. Pub. No. 2002-140160, herein after referred to as "Keiji") in view of Hiroaki et al. (JP. Pub. No. 09-282088, herein after referred to as "Hiroaki").

As to **claim 1**, Keiji teaches a trackball for inputting operation information to electronic devices [*TECHNICAL FIELD*], said trackball comprising:

a ball portion ("*ball 21*") [*Drawing 4*] magnetically coupleable in directions of a first axis (the axis formed by drawing a line between "*fixed magnetism member 32* and *34*") and a second axis (the axis formed by drawing a line between "*fixed magnetism member 31* and *33*"), the first and second axes intersecting with each other at the center of the ball portion and being orthogonal to each other;

a case portion ("*case 22*") [*Drawing 1*] for enclosing said ball portion such that an upper portion of said ball portion is exposed.

a first magnet portion ("*fixed magnetism member 32* and *34*" and "*fixed magnetism member 31* and *33*") for stabilizing said ball portion at predetermined rotation angles (the surface formed by "*rod 26*" and "*rod 27*" being parallel to "*cover plate 24*") by magnetically coupling to said ball portion in one of the axial directions (the axis formed by drawing a line between "*fixed magnetism member 32* and *34*" and the axis formed by drawing a line between "*fixed magnetism member 31* and *33*") [*par. (0034)*].

Keiji does not teach a second magnet portion for attracting the ball portion in a direction orthogonal to a rotation axis of the ball portion, by magnetically coupling to the ball portion in the other one of the axial directions.

However, Hiroaki [*Drawing 9*] teaches a second magnet portion ("*permanent magnet 31*") for attracting the ball portion ("*trackball 1*") in a direction orthogonal to the surface of the "*case 13*".

It would have been obvious to one of ordinary skill in the art at the time of the invention to include Hiroaki's second magnet portion on a bottom-surface of the case which is below Keiji's "*ball 21*" so that the second magnet portion and the third bar member (*Keiji*: "*bar 28*") of Keiji are magnetically coupled each other, thus to support of Keiji's "*ball 21*" [*par. (0024)*, *par. (0025)*, and *par. (0027)*].

As to **claim 2**, Keiji as modified by Hiroaki [*Keiji*: *Drawing 1*] teaches said ball portion (*Keiji*: "*ball 21*") being magnetically coupleable in a direction of a third axis (*Keiji*: an axis formed by "*bar 28*" in a stationary state of the "*ball 21*" as shown in [*Drawing 1*]) intersecting with the first (*Keiji*: the axis formed by drawing a line between "*fixed magnetism member 32* and *34*") and second axes (*Keiji*: the axis formed by drawing a line between "*fixed magnetism member 31* and *33*") at the center of said ball portion and orthogonal to the first and second axes [*Keiji*: *Drawing 5*] and said first magnet portion (*Keiji*: "*fixed magnetism member 32* and *34*" and "*fixed magnetism member 31* and *33*") allowing each of any two axes (the axis formed by drawing a line between "*fixed magnetism member 32* and *34*", the axis formed by drawing a line between "*fixed magnetism member 31* and *33*", or an axis formed by "*bar 28*" in a stationary state of the "*ball 21*" as shown in [*Keiji*: *Drawing 1*]) which are present on a plane to serve as a rotation axis of said ball portion [*Keiji*: *par. (0036)*].

As to **claim 6**, the modified Keiji does not expressly teach the trackball comprising a third magnet portion arranged at a location that makes a predetermined angel from any one of rotation axes formed by said first magnet portion, said third magnet portion being operable to

stabilize said ball portion by magnetic coupling when said ball portion rotates around the any one of rotation axes.

However, the courts have been held that a mere duplication of parts is generally recognized as being within the level of ordinary skill in the art [*St. Regis Paper Co. v. Bemis Co., Inc, 193 U.S.P.Q. 8, 11 (7th Cir. 1977)*].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an additional even number of bar members arranged on even number of axes at equal angles which are placed on a surface formed by any two axes among the first to third axes in Keiji's ball portion, and to include an additional even number of pairs of fixed magnet portions forming an even number of axes in Keiji's case to provide a multiple stable stationary positions for the operation of Keiji's ball.

As to **claims 9** and **10**, Keiji as modified by Hiroaki does not expressly disclose the magnetic force of said second magnet portion (*Hiroaki*: "*permanent magnet 31*") being greater than that of each magnet portion in said first magnet portion (*Keiji*: "*fixed magnetism member 32* and *34*" and "*fixed magnetism member 31* and *33*").

However, it is required for the second magnet portion of the modified Keiji to exert a magnetic force equivalent to twice of the magnetic force of each magnet portion of the first magnet portion ("*fixed magnetism member 31* or *32* or *33* or *34*") to allow the second magnet portion to provide the equivalent effect as the first magnet portion provides since the second magnet portion exert the magnetic force by itself while each of the first magnetic portion exert a magnetic force in a pair.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to specify the magnetic force of the second magnetic portion being twice that of the

first magnetic portion to allow the device user to operate the ball portion in three axes equivalently.

As to **claim 11**, the modified Keiji teaches the trackball, wherein:

said ball portion [drawing 5] is magnetically coupleable in directions of a plurality of axes on a plane made up of the first and second axes, the plurality of axes intersecting at an intersection point of the first and second axes; and

said case portion ("*case 22*") [Keiji: drawing 6] is operable to expose the upper portion of said ball portion ("*ball 21*") so as to restrict a rotation angle of said ball portion (by preventing the device user from accessing whole surface of the ball portion at a time).

As to **claim 12**, the modified Keiji [drawings 5 and 7] teaches the trackball, wherein:

the plurality of axes are even in number [drawing 5; "*26*" and "*27*"];

said ball portion comprises:

first and second bar members arranged on the first and second axes, respectively, and made of an unmagnetized magnetic material [as explained in page 3 of this Response];

said first bar member, said second bar member, and said plurality of bar members are arranged with an equal angle therebetween; and

said case portion ("*case 22*") is operable to expose the upper portion of said ball portion such that said ball portion ("*ball 21*") rotates at an angle corresponding to an angle between said bar members ("*rod 26*", "*rod 27*", or "*rod 28*").

5. **Claims 7** and **8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji and Hiroaki as applied to claim 1 above, and further in view of Kermani et al. (U.S. Pat. No. 6,504,528 B1, herein after referred to as "Kermani").

The modified Keiji does not disclose that the trackball (*Keiji*: "*ball 21*") to comprise means for switching in accordance with control parameters of the electronic devices between a presence and absence of a magnetic force of the third magnet portion.

However, Kermani [*fig. 5*] teaches magnetic force switching means ("*varistor 126*") for switching in accordance with control parameters ("*current flow*") of a control device between a presence and absence of a magnetic force of a magnet portion ("*electromagnet 122*") used for a trackball [*col. 4 lines 12-32*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the third magnetic portion of the modified Keiji to be switched between a presence and absence of a magnetic force in accordance with current flow controlled by the device user as taught by Kermani, to adjust the movement of the trackball and thus to optimize the operation of the control device including the trackball.

6. **Claims 13** are **14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Keiji and Hiroaki as applied to claim 1 above, and further in view of Lachman (U.S. Pat. No. 5,021,771, herein after referred to as "Lachman").

As to **claims 13** and **14**, most of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the trackball being mounted on a steering-wheel portion of the vehicle.

Keiji does not expressly disclose the trackball being mounted on steering-wheel portion of the vehicle.

However, Latchman [*fig. 4* and *5*] discloses a trackball being used for cursor control for a display device implemented in a car [*col. 6 lines 32-54*].

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Keiji's trackball device on a steering wheel of a vehicle as a cursor control device for the

display device implemented in a vehicle, as taught by Latchman, since display device implemented in a vehicle needs to show various selection for control of various electronic systems, in a screen, and thus requires a cursor control device to select the desired item and trackball is a known inputting device for cursor control.

Allowable Subject Matter

7. **Claims 3-5** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 30, 2006
S.M.

AMR A. AWAD
PRIMARY EXAMINER